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It's the People, Stupid: The Role of Personality and Situational Variables in Predicting Decisionmaker Behavior

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73rd MORS Symposium

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Description of the Problem

- Goal to predict foreign leaders' decisions, explicitly considering uncertainty in the prediction
- Recognition that these decisions are influenced by many factors
  - Triggering events (e.g., provocations, opportunities)
  - Contextual variables (e.g., economy, military strength, popular support)
  - Leader objectives (e.g., maintain power, leave a legacy)
  - Leader personality (e.g., need for power, acceptance of risk, trust)
  - Cultural context (e.g., power distance, future orientation)
- Need for methodology to neutralize analytic biases and errors
  - E.g., confirmation biases, recency, halo, hindsight, personalization
  - Capture an auditable history of evolving evidence and analyses, triggering the attention of the analyst
- Desire for analysis context that neutralizes social biases
  - E.g., senior expert, party line, biggest fistful of cables, best orator
  - Surface assumptions, evidence and logic underlying predictions

Topics

- Modeling method and process
  - Bayesian networks
  - Model development process
- Illustrative model for a national strike
  - Defining the question
  - Modeling the situation
  - Adding leader personality variables
  - Performing “what if” analyses
  - Assessing the sensitivity of variables
  - Linking source reports to key variables
- Summary of Progress
  - Progress to date
  - Future research and development

Why Bayesian Nets?

- Problem requires dealing with uncertainty
- Solution must update uncertainty with new information
- Bayesian nets provide intuitive, graphical structure:
  - Variables
  - Relevance among variables
- What-ifs and sensitivities are easy to explore
- Mature commercial software exists

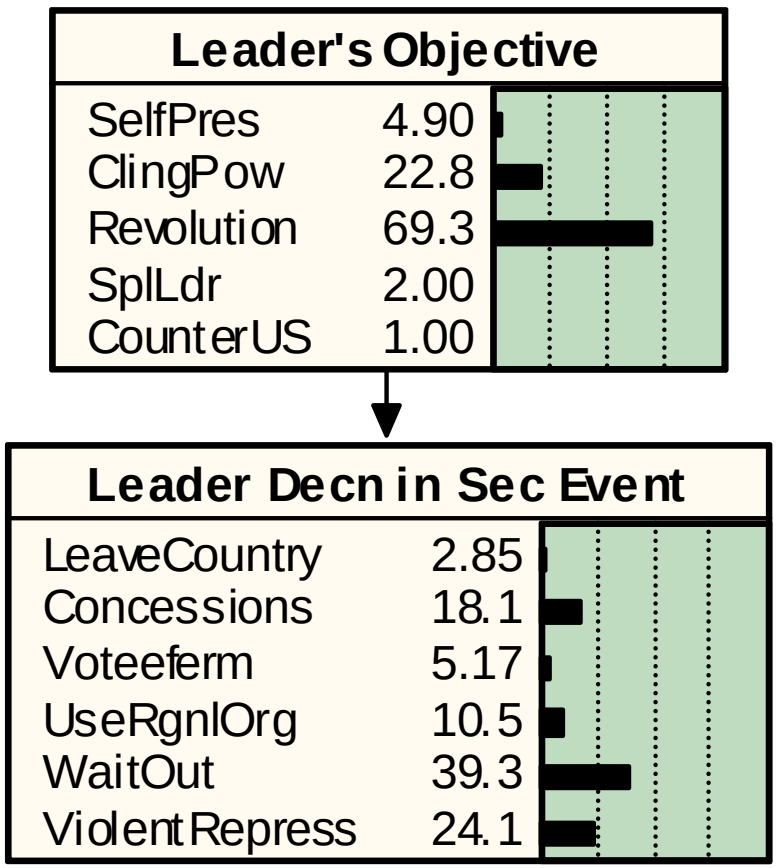
Model Development Process

- Two-day, facilitated meetings
- Attendees
  - Analysts
  - Model developers (facilitator and implementer)
  - External subject-matter experts
- General agenda for meetings
  - Define problem – hypothesized leader actions
  - Enumerate possible leader objectives
  - Identify situational variables – triggers, context, indicators
  - Link variables and estimate conditional probabilities
  - Link to leader personality variables
  - Perform “what if” and sensitivity analyses
  - Link to intelligence data sources

Notional Model Illustrating Method and Development Process

- Situation: leader responds to a national strike
- Variables and assessed probabilities based on judgments of knowledgeable consultants

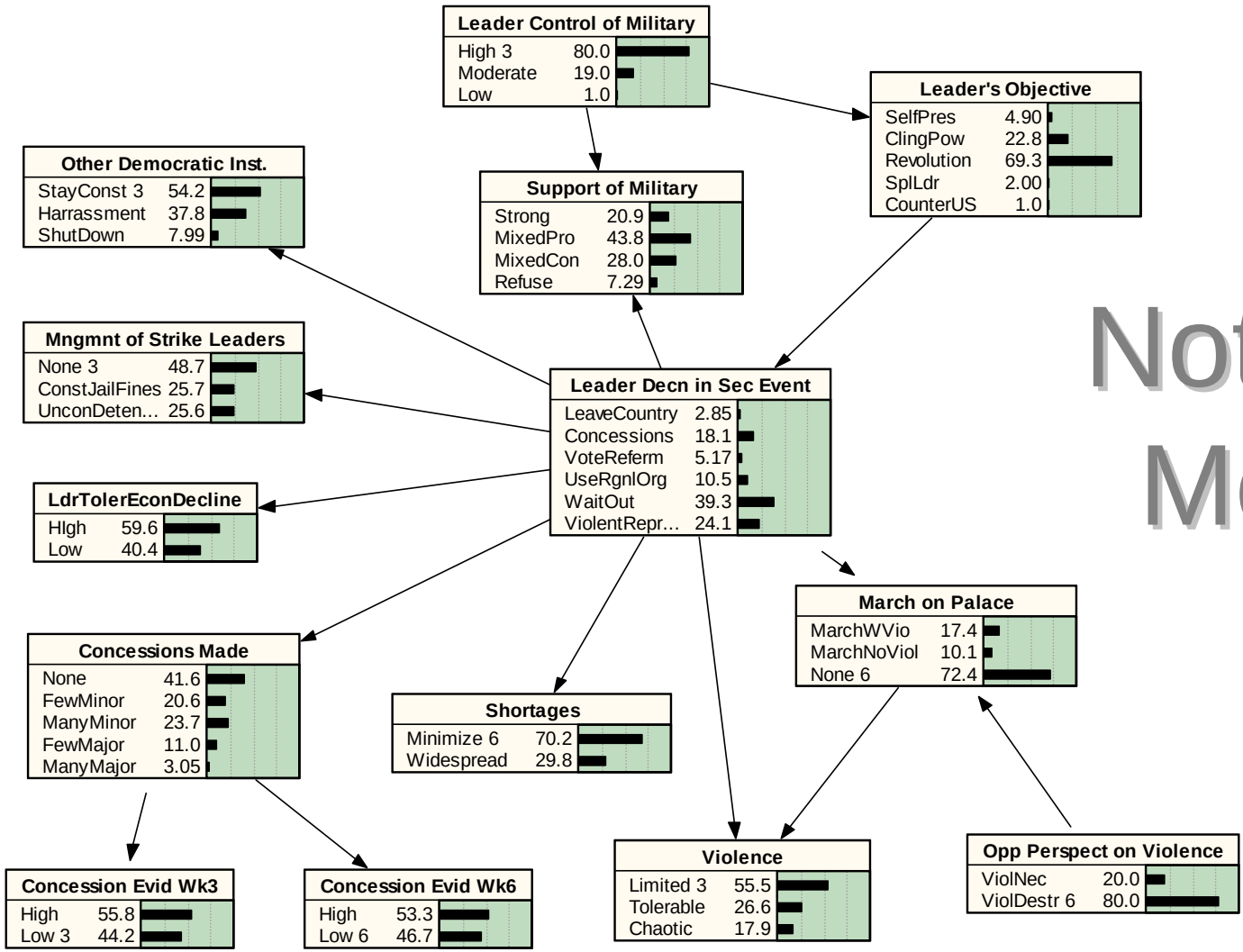
Hypothesized Actions and Leader Objective



Conditional Probabilities of Leader Decisions Given Objective

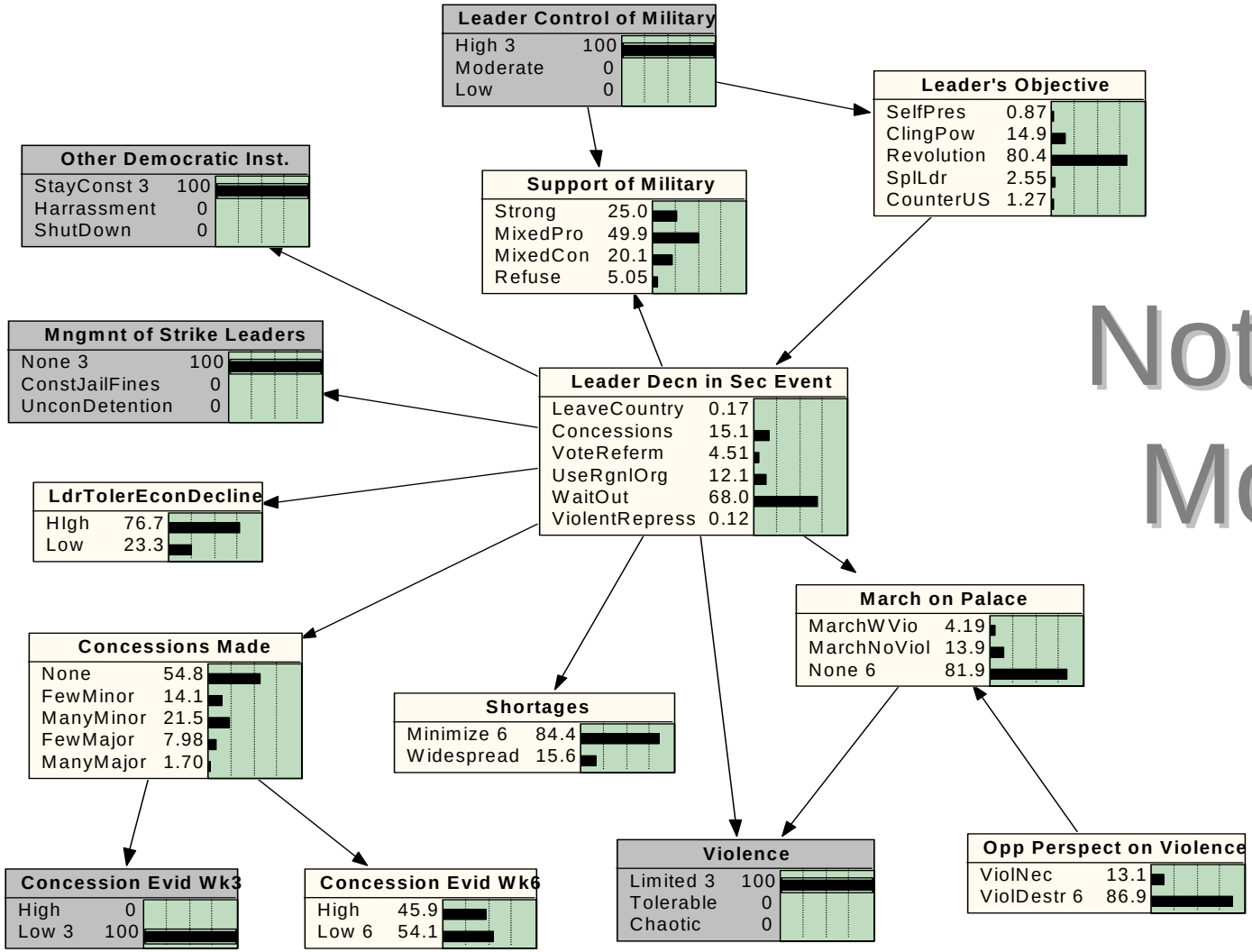
Leader's Objective	Leader Decision in Sec Event					
	Leave Country	Con-cessions	Voter Reform	Use Rgnl Org	Wait Out	Violent Repress
Self Pres	20	40	30	7	1	2
Cling Power	2	50	3	10	15	20
Revolu-tion	2	6	4	10	50	28
Special Leader	1	20	8	30	40	1
Counter-US	1	20	8	30	40	1

Structure of Hypothesis and Situational Variables



Notional Model

What if Analysis: Situational Variables Three Weeks after Strike Begins



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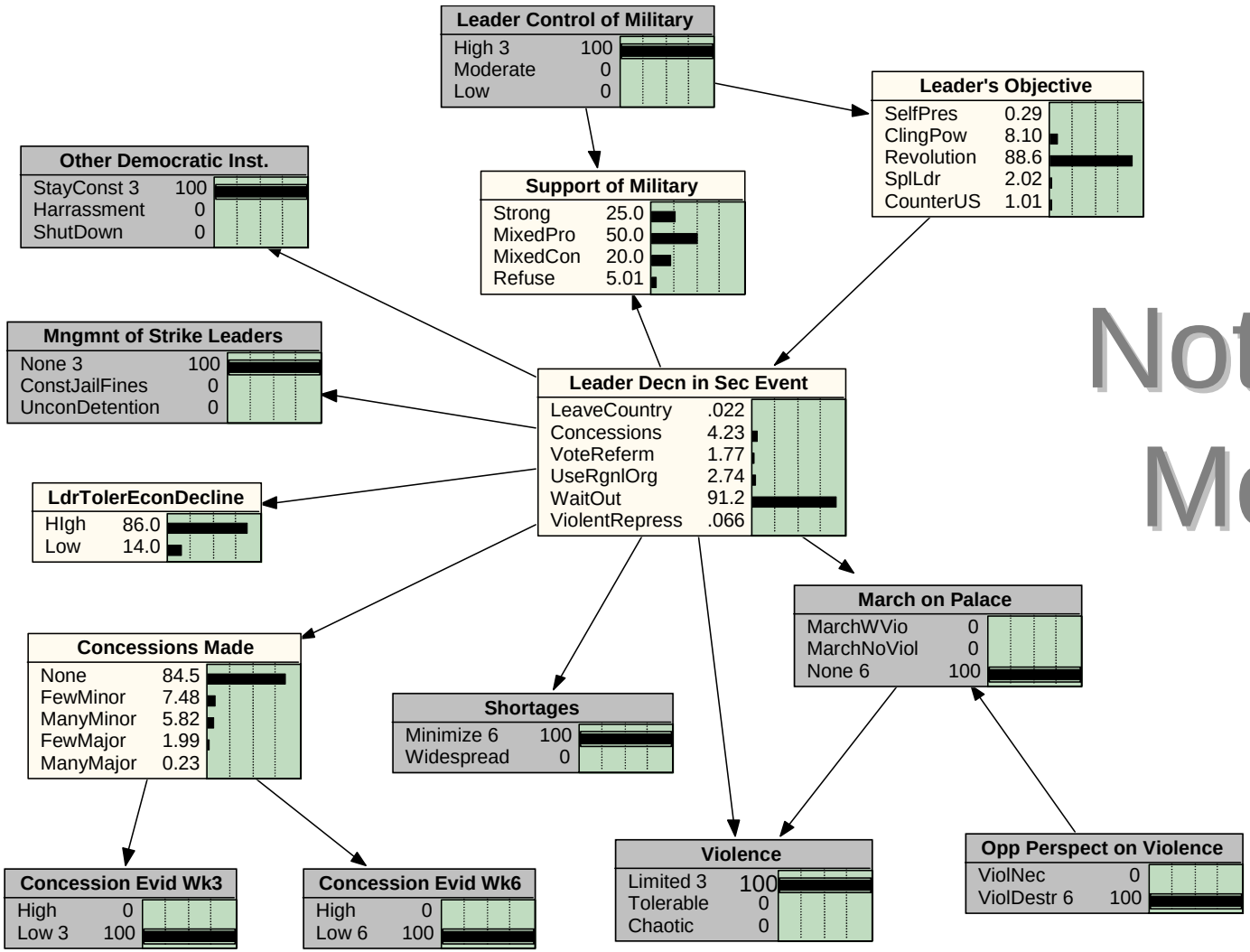
What if Analysis: Situational Variables Six Weeks after Strike Begins



Notional Model

Incorporating Leader Personality to Predict Decisions

- Personality variables combined from two sources
  - Political leadership variables
  - Five-factor personality model
- Personality effects represented in Bayesian network
- Leader personality affects action tendencies
- Relevant leader personality variables depends on characteristics of potential actions
- Impact of leader personality affected by situational constraints

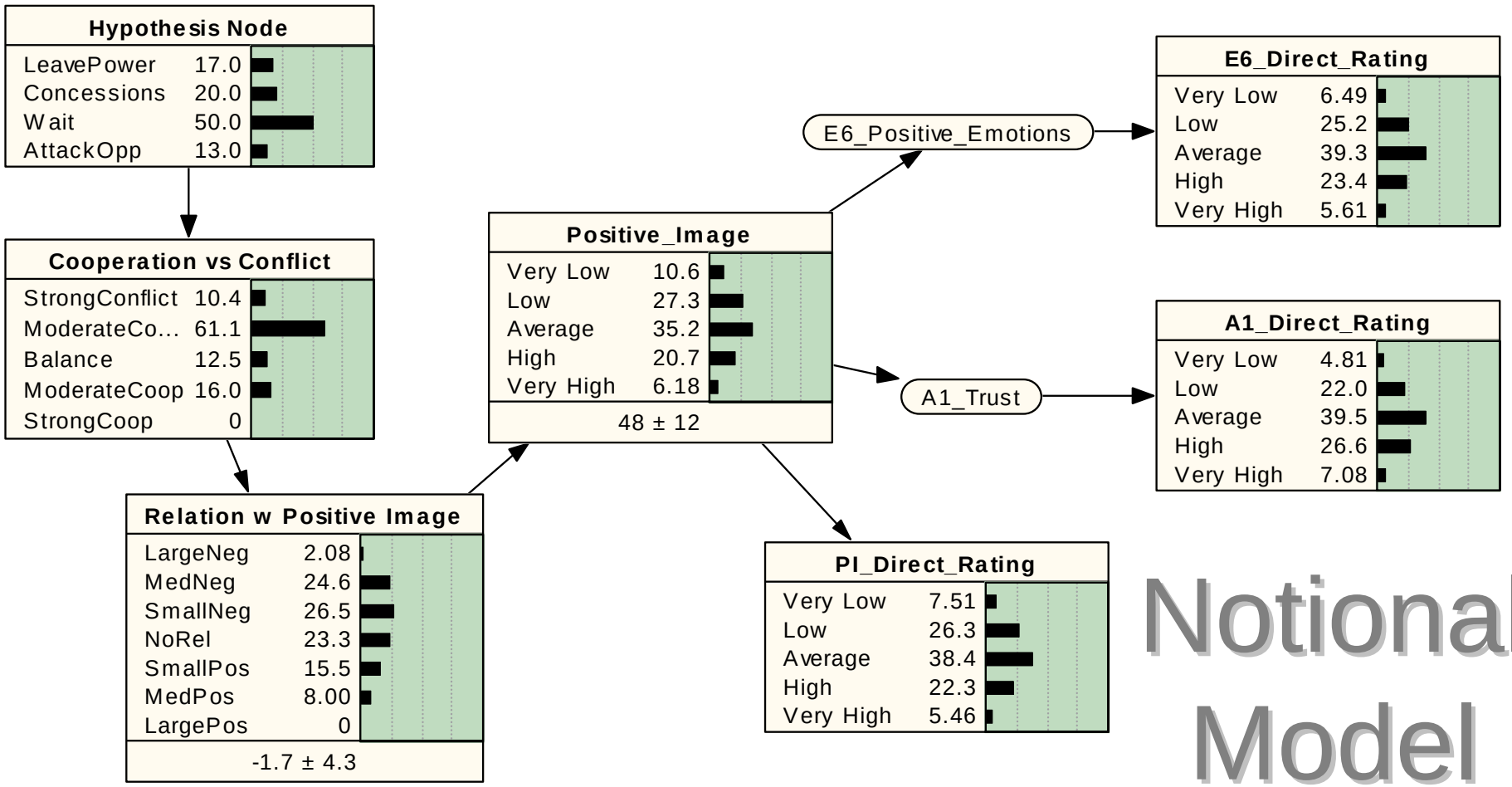
Links Between Personality Variables

Political Psychology	Facets from 5-Factor Model
Positive Image of Others	Positive Emotion (Extraversion) Trust (Agreeableness)
Internal Locus of Control	(-) Vulnerability (Neuroticism) (-) Depression (Neuroticism) Assertiveness (Extraversion) Competence (Consc.) Self-Discipline (Consc.)
Need for Power	(-) Compliance (Agreeableness) Achievement Striving (Consc.) Assertiveness (Extraversion)
Conceptual Complexity	Openness to Ideas (Openness) Openness to Values (Openness) Openness to Actions (Openness)
General Distrust & Suspicion	(-) Trust (Agreeableness) Angry Hostility (Neuroticism) (-) Warmth (Extraversion) (-) Compliance (Agreeableness)
Acceptance of Risk	Openness to Actions (Openness) (-) Anxiety (Neuroticism) (-) Deliberation (Consc.) Excitement Seeking (Extraversion) (-) Vulnerability (Neuroticism)

Current Action Categories/ Behavioral Proclivities

- Conflict versus cooperation (regarding opponents)
- Follow through required versus not required
- Consistent with position versus not consistent
- Unilateral versus collaborative (regarding colleagues)
- Substantive versus protocol
- Challenges constraints versus no challenges

Linkage of Personality Variables to Leader's Actions



Notional Model

Effects of Adding Personal Variables

Leader Decision	Start		3 Weeks		6 Weeks	
	Situation	Situation/ Personal	Situation	Situation/ Personal	Situation	Situation/ Personal
Leave Country	2.9	0.5	0.2	0.04	0.02	0.004
Concessions	18.1	5.8	15.1	6.5	4.2	1.5
Vote Reform	5.2	1.6	4.5	1.9	1.8	0.6
Use Rgnl Org	10.5	3.0	12.1	4.7	2.7	0.9
Wait Out	**39.3**	**37.4**	**68.0**	**86.6**	**91.2**	**96.8**
Violent Repress	24.1	51.7	0.1	0.3	0.07	0.2

Status of the Project

- Apollo software-based analysis tool soon to be delivered
  - Embody the Bayesian networking and model development procedures
  - Include library of models and abstracted model templates
- About one dozen models developed
  - Combination of historical and prospective analyses
  - Models will provide templates for future users
- Enhancements to model capability underway
  - Personality and cultural research
  - Analytical research and evaluation of methodology
  - Develop and incorporate new visualization concepts

Future Research and Development

- Improvements in the links between personality and leader actions
  - Expert judgment study to estimate relationships between personality and behavioral proclivities
  - Evaluation of assessment instruments and investigation of personality assessments at a distance
- Incorporation of leader culture in the modeling and analysis process
  - Determination of appropriate cultural framework and variables
  - Specify and estimate links between cultural variables and behavior (e.g., culture-personality or culture-behavior links)
- Examination of methodological issues of personality modeling
- Enhanced analysis of intelligence documents to update model probabilities
  - Associates intelligence reports and web documents with model variables
  - Ranks reports based on salience using variable profiles written by user
  - Future version will suggest a probabilistic impact for variable